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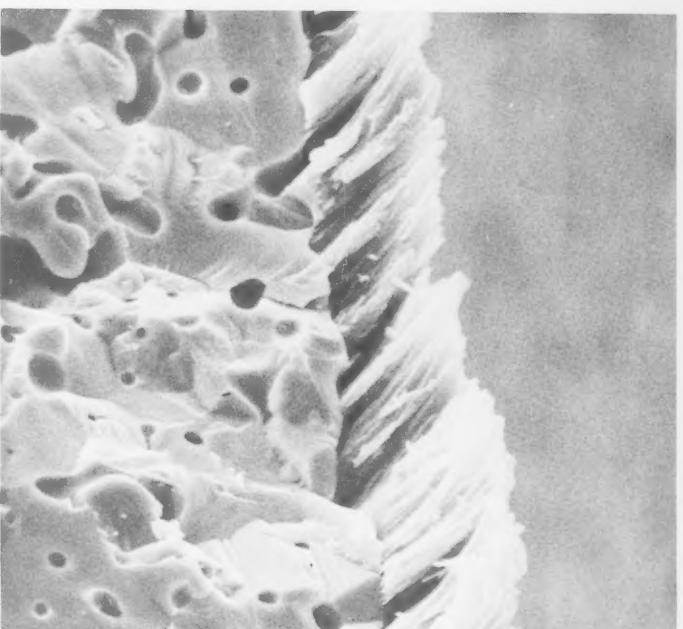
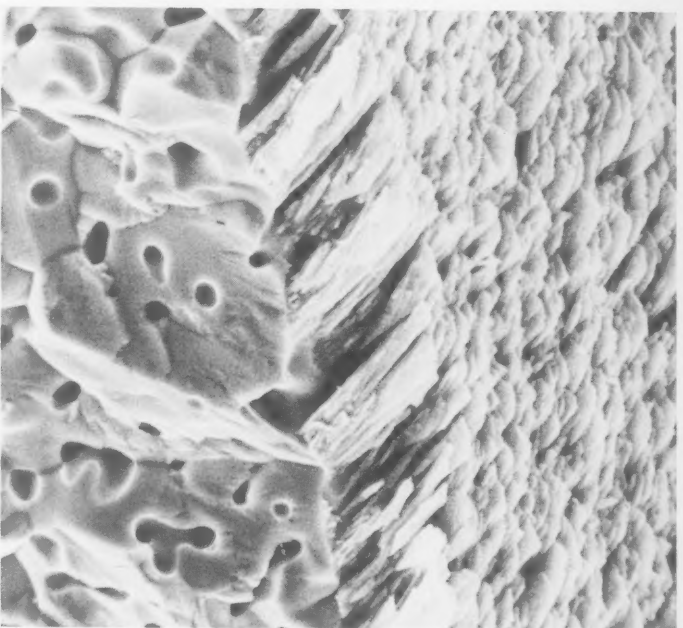
Journal Papers

The following papers appeared in the November–December 1977 issue of the *Journal of the American Ceramic Society*, formerly published under the same cover as *Ceramic Abstracts*:

- Grain Boundary Phases in a Hot-Pressed MgO Fluxed Silicon Nitride.** D. R. Clarke and G. Thomas, University of California, Berkeley.
- Subsolidus Equilibria and Stabilization of Tetragonal ZrO_2 in the System $\text{ZrO}_2\text{-Al}_2\text{O}_3\text{-SiO}_2$.** C. A. Sorrell and C. C. Sorrell, University of Missouri–Rolla
- The Effective Medium Theory of Diffusion in Composite Media.** H. T. Davis, University of Minnesota, Minneapolis
- Elastic Properties of Monoclinic Hafnium Oxide at Room Temperature.** S. L. Dole, O. Hunter, Jr. and C. J. Wooge, Iowa State University, Ames
- Coefficient of Thermal Expansion and Dynamic Response to Pulsed Energy Deposition in $\text{HfO}_2\text{-TiO}_2$ Compositions.** J. L. Anderson, R. A. Briesmeister and S. R. Skaggs, Los Alamos Scientific Lab, Los Alamos, N.M.; G. A. Carlson, Sandia Labs, Albuquerque, N.M.; and Robert Ruh, Air Force Materials Lab, Wright-Patterson AFB, Ohio
- The System $\text{HfO}_2\text{-Eu}_2\text{O}_3$.** R. W. Scheidecker and D. R. Wilder, Iowa State University, Ames
- The System Erbium-Zirconia.** P. Duran, Instituto de Ceramica y Vidrio, Madrid, Spain
- Phase Equilibria and Ordering in the System $\text{ZrO}_2\text{-CaO}$.** V. S. Stubican and S. P. Ray, Pennsylvania State University, University Park
- Reaction Products in Magnesium Oxychloride Cement Pastes. The System $\text{MgO-MgCl}_2\text{-H}_2\text{O}$.** Boris Matkovic, Stanko Popovic, Vinko Rogic and Tonci Zunic, Institute Rudjer Boskovic, Zagreb, Yugoslavia; and J. Francis Young, University of Illinois, Urbana
- A Nonlinear Structural Relaxation Model for the Glassy State: Application to B_2O_3 .** H. S.-Y. Hsieh, Brockway Glass Co., Inc., Brockway, Pa.
- Raman Scattering of Carbonate Ions Dissolved in Potassium Silicate Glasses.** H. Verweij, H. van den Boom and R. E. Breemer, Philips Research Labs, Eindhoven, Netherlands
- Sodium Diffusion in Glass: II, Mixed Na-K Silicate Glasses.** Chung Lim and D. E. Day, University of Missouri–Rolla
- Heat Transfer and Temperature Control in an Annealing Lehr for Float Glass.** G. K. Chui, Ford Motor Co., Dearborn, Mich.
- Effect of Fast Neutron Irradiation on the Structure of Boron Carbide.** G. W. Hollenberg and W. V. Cummings, Westinghouse Hanford Co., Richland, Wash.
- Fracture Behavior of $\text{ZrO}_2\text{-Zr}$ Composites.** A. V. Virkar and D. L. Johnson, Northwestern University, Evanston, Ill.
- LEP Growth and Composition of Magnetic EuTm-GaGe Iron Garnet Films.** E. A. Giess, C. F. Guerri and F. Cardone, IBM Thomas J. Watson Research Center, Yorktown Heights, N.Y.

The following papers are tentatively scheduled for publication in the January–February 1978 issue of the *Journal of the American Ceramic Society*, which will be published the latter part of January:

- Low-Angle Grain Boundary Macrostructure in Large-Diameter Czochralski White Sapphire.** V. F. S. Yip and C. D. Brandle, Union Carbide Corp., San Diego, Calif.
- Strength Degradation of Thermally Tempered Glass Plates.** D. B. Marshall and B. R. Lawn, University of New South Wales, Kensington, Australia
- Oxidation of Thin Sheet Reaction-Sintered Silicon Nitride.** J. B. Warburton, J. E. Antill and R. W. M. Hawes, Harwell Corrosion Service, Harwell, United Kingdom
- Phase Equilibria and Ordering in the System $\text{ZrO}_2\text{-Y}_2\text{O}_3$.** V. S. Stubican, R. C. Hink and S. P. Ray, Pennsylvania State University, University Park
- Subsolidus Phase Equilibria in the System $\text{Na}_2\text{O-Bi}_2\text{O}_3\text{-TiO}_2$ at 1000°C .** Kenji Uchida and Takeshi Kikuchi, National Institute for Researches in Inorganic Materials, Ibaraki, Japan
- Kinetics of Crystal Growth of Calcium Tungstate from Solutions in Sodium Tungstate Melts by Continuous Cooling.** B. N. Roy and S. Appalasami, Universiti Sains Malaysia, Penang
- Mechanism and Kinetics for the Formation of Uranium Mononitride by the Reaction of Uranium Dioxide with Carbon and Nitrogen.** Tadasumi Muromura and Hiroaki Tagawa, Japan Atomic Energy Research Institute, Ibaraki-ken, Japan
- Inhomogeneity-Packing Density Relations in Binary Powders.** G. L. Messing and G. Y. Onoda, Jr., University of Florida, Gainesville
- Effect of Composition on the Mechanical Properties of Aluminosilicate and Borosilicate Glasses.** R. J. Eagan and J. C. Swearingen, Sandia Labs, Albuquerque, N.M.
- Enhanced Thermal Stress Resistance of Structural Ceramics with Thermal Conductivity Gradient.** D. P. H. Hasselman and G. E. Youngblood, Montana Energy and MHD R & D Institute, Butte
- Phase Relations in the System $\text{Si}_3\text{N}_4\text{-SiO}_2\text{-MgO}$ and Their Interrelation with Strength and Oxidation.** F. F. Lange, Westinghouse Research Labs, Pittsburgh, Pa.
- NMR Relaxation Study of Adsorbed Water in Cement and C_3S Pastes.** R. Blinc, M. Bugar, G. Lahajnar, M. Rozmarin and V. Rutar, University of Ljubljana, Yugoslavia; and I. Kocuvan and J. Ursic, Saloni, Anhovo, Yugoslavia
- Aluminum Oxyhydroxides Formed by the Reaction of Methyl Esters with Sodium Aluminate Solution.** Jean Beaufils and Ralph Setton, Laboratoire d'Etudes Physicochimiques, Orleans, France; and Charles Mazieres, Universite de Paris-Sud, France
- Relations Between Particle Size, Shape and Surface Area of Mg(OH)_2 and Its Calcination Product.** V. A. Phillips, H. Opperhauser and J. L. Kolbe, Martin Marietta Labs, Baltimore, Md.
- Permeation Eccentricities of He, Ne and D-T from Soda-Lime Glass Microbubbles.** P. C. Souers, University of California, Livermore
- Aging of Dielectric Dispersion in PLZT Relaxor Ceramics.** W. A. Schulze, J. V. Biggers and L. E. Cross, Pennsylvania State University, University Park
- Effect of the Phase Transformation on the Fracture Behavior of BaTiO_3 .** R. C. Pohanka, S. W. Freiman and B. A. Bender, Naval Research Lab, Washington, D.C.
- Mullite Crystallization from $\text{SiO}_2\text{-Al}_2\text{O}_3$ Melts.** S. H. Risbud and J. A. Pask, University of California, Berkeley
- Spectroscopic Investigations of the Kaolinite-Mullite Reaction Sequence.** M. Bulens, A. Leonard and B. Delmon, Groupe de Physico-Chimie et de Catalyse, Louvain-la-Neuve, Belgium
- Compounds and Properties of the System Si-Al-O-N .** P. L. Land and J. M. Wimmer, Wright-Patterson AFB, Ohio; and R. W. Burns and N. S. Choudhury, Technology, Inc., Dayton, Ohio
- New Lines in the Raman Spectra of Carbons and Graphite.** R. Vidano and D. B. Fischbach, University of Washington, Seattle



ALUMINUM EVAPORATED OBLIQUELY ONTO FIRED ZIRCONIA

(1000 X)

Aluminum was electron beam evaporated onto a fired surface of stabilized zirconia. The evaporant stream was directed at an angle of 20° with respect to the surface of the ceramic. The aluminum film grew in a columnar fashion, back toward the evaporant stream, forming a porous metal coating. Aluminum evaporated normal to the same surface does not exhibit such growth or high porosity.

SEM Fractography

*N. M. Potter, R. V. Wilhelm
General Motors Research Laboratories*

